

Important Notes:

[Download a copy of the Creative Thinking Skills sheet](#) (available in 12 different languages)  
[Character designed visual for Creative Thinking Skills](#)

[Create Your Own Rocket](#)

[Fueling Creativity in Education Podcast](#)

[Youtube Station with Simple Creative Thinking Exercises](#)

Hello. My name is [Dr. Cyndi Burnett](#) and I'm the Director of Possibilities for [Creativity and Education](#). Creativity and Education is an organization designed to empower educators and parents around the world to integrate creative thinking skills into their classrooms and homes. I'm also the author of several books, [Weaving Creativity into Every Strand of Your Curriculum](#), [20 Lessons to Weave Creative Thinking into Your Classroom](#), and [My Sandwich is a Spaceship Creative Thinking for Parents with Young Children](#).

I'm very excited to speak with you about a topic that I find really important in 2022. Today, I'm going to talk to you about weaving creativity into every aspect of your STEAM curriculum. The goals for this session are to understand creativity and the role in your classroom, to identify a set of creative thinking skills, and to learn how to integrate creative thinking skills into your steam lessons.

So let's get started.

Let's start with a definition of creativity. Now, there are many different definitions of creativity out there, but there is one that has stood the test of time, and that is creativity is the production of novel or new and useful ideas. So when we talk about creativity, we have to think about what do we need to do to help our students generate novel and useful ideas. Now, this isn't the perfect definition, but it is a really good starting point.

Next, I'd like to show you a Componential model that was developed by Harvard researcher, Theresa Amabile, and you can see the three intersecting circles. First, Amabile talks about domain skills. Now domain is the area in which you are working. So science, technology, engineering, arts, math, those are all domain skills. That's the actual content you're trying to teach. Next, you have creativity skills and that's what we're going to be talking about today. And those are things like risk taking, generating novel ideas, tolerating ambiguity, being able to be open. aware of new ideas, being mindful and many others. Finally, we have task motivation and you can find motivation happens both intrinsically when we're motivated by the things that are internal in us, that passion. And then there's external motivation, which is the carrot, the cookie, and the treat that you offer your students, or even a grade is a motivator.

At the intersection of those three circles, you will find the highest levels of creativity. So what we want to do is merge those domain skills and those creativity skills today, so that we can help our students not only develop those important skills that come from STEAM, but also to develop their creative thinking skills.

Now, there are two other ways to look at creativity. And one is the expressive side of creativity, and that's typically what's considered the work that really helps us express

ourselves in meaningful and authentic ways. It often comes out in the arts. And then there's the improving upon view of creativity, which is the more scientific, cognitive, rational, semantic view of creativity, where we're looking to improve on a process or an object.

I've spent 20 plus years in the field of creativity, looking at this intersection and bridge between the expressive side of creativity and the improving upon creativity and what I found came out of the work of E. Paul Torrance. Now E. Paul Torrance was known as the [Father of Creativity and Education](#), and over the course of his lifetime, and he died in 2003, he wrote over 2000 articles, books and chapters on creativity.

And he did a longitudinal study on people who went beyond and he called these people "beyonders" and these beyonders had a certain set of skills and these were creativity skills, and that's what we're going to be showing you today. Now let's take a look at these skills that showcase beyonders. You're going to see them on the right hand side and let's look at them a little bit closer, but ultimately these skills will help you both on the science side of creativity and the art side of creativity.

So take a moment and look at these skills. You can download [\(I put a link in here\)](#), so you can download these skills, and they are available in 12 different languages. And we also have [characters that you can show your students of each of these skills, and these are all free to download.](#)

But, like with sports, creativity is about more than just one skill. So let's take swimming, for example. In order to be a good swimmer, it's not just about one thing. It's not just, I'm a good swimmer because I can swim. It's about being able to do the front stroke and the backstroke and the breaststroke and the butterfly. It's about being able to dive and do flips in the water. And it's about being able to hold your breath and how fast you can move and how fast you can kick.

There are so many different elements of being a good swimmer. Now the same is true with creativity. It's not just one thing. It's not just about generating ideas. It's not just about coming up with original ideas. There's a whole set of skills and that's what these beyonders skills are. So, what I'd like you to [do now is download this link and this picture.](#)

And what I'd like you to do is take a moment to review the list of skills, place a star on all the skills you would consider a personal. Strength. Then place a check mark on the skills that you would like to develop. Now you can pause this video and come back after you've spent some time exploring these creative thinking skills.

Next we want to talk about your STEAM lessons. So hopefully you've brought something along today that we can play. Now I have worked with educators over the last 15 years and when they are interested in creativity, they will often come to me and they have two pressing questions. They say, Cyndi, I know I want to bring creativity into my classroom. I think it's really important, but how do I actually do it? And how do I do it when I'm pressed for time?

And so that's where weaving creativity comes into play. So, in weaving creativity, you have those content skills, those domain skills that we talked about earlier and creativity skills, and you merge them together to create your lesson.

You have your content lesson, that thing that you want to teach in STEAM, and then you pick a creativity skill from the list that I gave you, and then you come up with ideas to merge them together. So let's take a really basic example that most STEAM educators use, which is creating a rocket ship of some sort.

Across your curriculum, you probably have a rocket ship or an airplane that you have your students create. If not, [I'll include a link in this lesson plan](#), but what we would like you to do is think about the things that you normally do when you're teaching about this rocket ship. And we're going to add a few different dimensions to it by weaving those skills in.

First, we're going to try being aware of emotions. Being aware of emotions is all about being conscious of feelings, using trusting, and responding to emotions in other people's feelings. Now what's really interesting about this is you can take being aware of emotions and you can take that rocket ship and you can merge them together in your lesson.

An easy way to do this is before you even get started say to your students, "Hey guess what we're going to be doing today? We're going to be building an aircraft of the future! How do you feel about that?" And then give them a sheet of paper or even a simple post-it note and say, "I want you to create an emoji of how you feel about creating an aircraft of the future".

Now, by doing this, you have them aware of their emotions while you go into the lesson. And a way you can end this lesson is just to ask them at the end, "how do you feel now that you've created the rocket ship or the airplane?" Have another post it next to it so you can assess just by looking around the room, how your students are feeling and are aware of their emotions about this particular exercise.

And you can incorporate this exercise into any lesson, which is great, but I wanted to show you with regard to the rocket ship. Let's take another skill with the same content. Let's take get glimpses of the future. Now this is about predicting, imagining, and exploring ideas that don't yet exist. And this is a great skill to bring into your STEAM lessons.

So how do you get your students to think about the future and imagine the future? What we're going to do is we're going to use that same rocket ship, and we're going to get glimpses of the future. Before you start, have your students close their eyes and imagine an aircraft of the future, what does it look like? What does it feel like? What is it able to do?

And after you've given them some time to imagine this aircraft of the future, have a discussion about it. What would an aircraft of 2040 look like or 2050? What are you able to do on it? What are you able to eat or drink? What does it smell like? What does it look like?

You could do a whole piece around this aircraft of the future before they even begin. So again, you're taking that domain skill and you're taking that creativity skill and you're merging them together to create your ideas. Finally, I want to show you one more example

of integrating a creative thinking skill and with the same lesson of the aircraft, and this skill is about producing and considering many alternatives.

And this is really divergent thinking. So imagine you're going to your class and you're going to have them build this rocket ship. And this time you want them to produce and consider many alternatives. So what if you were to have your students generate possible names for this future aircraft and you have them aim for at least 10 or maybe 20, or maybe you have them do it in small groups and they could generate a hundred names for this aircraft. This is a great way to bring in divergent thinking while you're teaching them about the basics of designing an aircraft.

So now it's time to look at your STEAM lessons. Here's my recommendation on how to get started. First, pick a lesson that you don't particularly like teaching because this will also help your lessons become more engaging and more fun for both the students as well for you.

Pick a lesson that you don't enjoy teaching, and then look at the list of skills. Select a skill that you might want to use and deliberately bring it in. Don't be afraid to use the language of these creative thinking skills. "Wow. That was great risk taking!" "I'd love for you to embrace the challenge." "Oh, this is going to be a bit tricky. We're going to ask you to tolerate the ambiguity".

Now, you're probably looking at this lesson saying, wow, I already do this a lot in my STEAM lessons. A lot of this is natural. Great. It should be natural. And I will tell you that I've done hundreds of workshops on weaving creativity into the classroom. And what I found most exciting was teachers going through the ideas and generating ideas and saying, wow, I actually do a lot of this already in my classroom now.

As I told you, I did a lot of workshops on this and all these ideas were combined together because one teacher said to me, you are gonna turn this into a book, right? So the first book that I wrote was [\*Weaving Creativity Into Every Strand of Your Curriculum\*](#), which has over a thousand ideas, how and how to deliberately bring creative thinking skills into your classroom.

And, after that book was released, we had lots of teachers coming back to us saying, actually, we also need a script of exactly how we can integrate these, these skills in with any content. Can you build us something like that? So together with my colleague, Lola Schnapp, we designed, [\*20 Lessons to Weave Creative Thinking Skills Into Your Classroom\*](#).

You can purchase these books on Amazon, as well as our our website at [creativityandeducation.com](http://creativityandeducation.com). [You can also obtain the first two chapters for free on our website](#). I would love to encourage you to check out our YouTube station [Createtubeity](#), where we have dozens of activities that you can do with your students in the classroom to help nurture creative thinking skills.

I also have a [Fueling Creativity and Education podcast](#) where we interview the leading scholars, thinkers, and practitioners in the field of creativity and education. And you find lots

of tips that you can obtain from listening to those podcast episodes. And finally check out [CreativityandEducation.com](https://creativityandeducation.com) for lots of free resources, tips, techniques, and strategies. We have lots of blog posts on STEAM to look at how you can do this in your classroom.

If you have any questions, feel free to reach out to me at [cyndi@creativityandeducation.com](mailto:cyndi@creativityandeducation.com). Thanks so much for joining me today and have a wonderful day.